MATRIX EXERCISE

1. Construct a matrix with one row for each movie as An Unexpected Journey, The Desolation of Smaug, The Battle of the Five Armies. The first column is for the US box office revenue (in $), and the second column for the Non-US box office revenue (in $). Name the matrix as **hobbit\_matrix**.

**US Non-US**

**An Unexpected Journey 460.99 314.40**

**The Desolation of Smaug 290.47 247.90**

**The Battle of the Five Armies 309.31 165.80**

2. Calculate the worldwide box office figures for the three movies and put these in the vector named **worldwide\_vector**.

3. Add **worldwide\_vector** as a new column to the **hobbit\_matrix** and assign the result to **hobbit\_matrix2**. Use the cbind() function.

4. Construct a matrix with one row for each movie as The Fellowship of the Ring, The Two Towers and The Return of the King. The first column is for the US box office revenue (in $), and the second column for the Non-US box office revenue (in $). Name the matrix as **lord\_of\_the\_rings\_matrix**

**US Non-US**

**The Fellowship of the Ring 474.51 552.57**

**The Two Towers 310.76 338.72**

**The Return of the King 380.33 468.51**

Assign to **all\_hobbit\_matrix** a new matrix with **hobbit\_matrix** in the first three rows and **lord\_of\_the\_rings\_matrix** in the next three rows. Use the rbind() function.

5. Calculate the total revenue for the US and the non-US region and assign **total\_revenue\_vector**.

6. Calculate the following:

a. average Non-US revenue for all movies for **all\_hobbit\_matrix** . Assign this average to the **non\_us\_all** variable.

b. average US revenue for last 3 movies for **all\_hobbit\_matrix** . Assign this average to the **us\_lord\_of\_rings** variable

7. Assign the matrix with the estimated number of Non-US and US visitors for the six movies of **all\_hobbit\_matrix** to visitors. Assume that the price of a ticket was 5 dollars.

8. After looking at the result of the previous exercise, it was found out that the ticket prices went up over time as per below matrix. Analysis has to be done based on the prices you can find in **ticket\_prices\_matrix**. Create **ticket\_prices\_matrix** according to following data.

**US Non-US**

**An Unexpected Journey 3 3**

**The Desolation of Smaug 4 4**

**The Battle of the Five Armies 5 5**

**The Fellowship of the Ring 6 6**

**The Two Towers 7 7**

**The Return of the King 8 8**

a. Assign to visitors the matrix with your estimated number of Non-US and US visitors for the six movies.

b. Assign to **average\_us\_visitors** the average number of visitors in the US for a **all\_hobbit\_matrix** .

c. Assign to **average\_non\_us\_visitors** the average number of visitors in non-US areas for a **all\_hobbit\_matrix.**